

CLAIMS

We claim:

1. A method of designing an elevator system having a belt with a plurality of grooves on one side of the belt that travels over at least a drive sheave, comprising the
- 5 steps of:

selecting a diameter of at least the drive sheave; and

selecting a width of the grooves on the belt such that a ratio of the groove width to the sheave diameter is less than about .05.

- 10 2. The method of claim 1, including selecting the sheave diameter and groove width such that the ratio is less than about .015.

3. The method of claim 1, including selecting the sheave diameter and groove width such that the ratio is less than about .008.

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4. The method of claim 1, including selecting the sheave diameter and groove width such that the ratio is between .001 and .015.

5. The method of claim 1, including selecting the ratio of groove width to sheave
- 20 diameter based upon an expected speed of elevator cab travel.

6. The method of claim 5, including selecting the ratio to be in a first range when the expected speed is a first speed and selecting the ratio to be in a second higher range when the expected speed is a second, slower speed.

7. The method of claim 5, wherein the expected speed is approximately 1 m/s and including selecting the sheave diameter and the groove width such that the ratio is less than about .008.

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8. The method of claim 1, including providing a fillet at the edges of each groove.

9. An elevator system, comprising:
- a cab;
- a belt that supports the cab and facilitates movement of the cab, the belt having a plurality of spaced grooves on at least one side of the belt; and
- 5 at least one sheave over which the belt travels as the cab moves, the sheave having a diameter that has a relationship to a width of the grooves on the belt so that a ratio of the groove width to the sheave diameter is less than about .05.
10. The system of claim 9, wherein the ratio is less than about .015.
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11. The system of claim 9, wherein the ratio is less than about .008.
12. The system of claim 9, wherein the ratio is between .001 and .015.
- 15 13. The system of claim 9, including a fillet at the edges of each groove.
14. The system of claim 13, wherein the fillets each have a radius of curvature that is between about 0.1mm and about 0.5mm

15. An elevator belt assembly, comprising:

a plurality of cords aligned generally parallel to a longitudinal axis of the belt;

and

a jacket over the cords, the jacket including a plurality of grooves spaced

5 longitudinally on at least one side of the jacket, the grooves including a fillet near the one side of the jacket.

16. The assembly of claim 15, wherein each fillet has a radius of curvature that is the same.

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17. The assembly of claim 15, wherein each fillet has a radius of curvature that is between about 0.1mm and about 0.5mm.